

REMARKS

This is in response to the Official Action mailed December 9, 2003. Applicant requests a one-month extension of time to respond, and payment of the \$110 extension fee is enclosed herewith. If any additional fees are required, the Assistant Commissioner is authorized to charge the same to the account of Barnes & Thornburg, Deposit Account No. 10-0435, with reference to our matter number 30705-68918.

Rejection of Claims 5 and 34

The Examiner has rejected claim 5 due to the following informality: Claim 5 recites "the reservoir solution the material provided to affect vapor diffusion rates" in lines 2-3. The Examiner has recommended separating the two ideas using a period or a comma to improve the grammar. The correction has been made above in amended claim 5.

The Examiner has also rejected claim 34 due to the following informality: Claim 34 recites: "the collar having a width large than the diameter of the well" in line 2. The Examiner has recommended replacing "large" with "larger" to improve the grammar. The correction has been made above in amended claim 34.

Rejection of Claims 1-2, 4-5, 14-23, 27-31, 36-39 Under 35 U.S.C. § 103(a)

Claims 1-2, 4-5, 14-23, 27-31, 36-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heilig et al. (U.S. Patent No. 5,266,284) in view of Knittel (U.S. Patent No. 3,972,689).. In particular, starting on page 3, the Examiner alleges that the proposed Heilig et al./ Knittel combination renders each of the rejected claims obvious. The Applicant respectfully disagrees.

Discussion of Claim 1

As indicated above claim 1 reads as follows:

1. A device for kinetically controlling the rate of vapor diffusion during crystal growth said device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end, wherein said pathway controls the vapor

diffusion rate between a crystal growth solution and a reservoir solution, the first end of the device configured for placement in a well of a plate containing the reservoir solution .

Accordingly, the Examiner will appreciate that a device defined by claim 1 will include a first end, a second end, a discrete diffusion pathway extending from the first end to the second end, and the first end of the device being configured for placement in a well of a plate containing a reservoir solution. The Applicant notes that the Examiner acknowledges that Heilig does not teach or suggest a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end, with the first end of the device being configured for placement in a well of a plate containing the reservoir solution. (See the paragraph bridging pages 3 and 4 of the Office Action.) In an attempt to cure the deficiencies of Heilig, the Examiner relies upon the disclosure of Knittel. In particular, the Examiner alleges that the entire disclosure of Knittel teaches a diffusion limiting channel having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. The Examiner also alleges that Knittel teaches that the first end of the device is configured for placement in a well containing a reservoir solution. However, Applicant respectfully points out that Knittel does not teach or suggest a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. As shown in FIGS. 1 and 2 of Knittel, the constricting channel 4 does not extend from the first end to the second end of the device as recited by claim 1. In fact column 2, lines 1-6 of Knittel reads as follows:

Referring to FIG. 1 a tube 1 approximately 15 cm long is tapered at one end 2. A crystal 3 grows at this tapered end. A constricting channel 4 about 5 cm from the bottom of the tube and of ½ mm diameter extends fully into the liquified sample 5.

Accordingly, the Examiner will appreciate that Knittel's constricting channel only extends about a third of the distance from the first end of the device to the second end. This is in contrast to the language in claim 1 which recites "a discrete diffusion pathway extending from the first end to the second end." Moreover, the Examiner is reminded that claim 1 requires that the first end of the device be configured for placement in a well of a plate containing the reservoir solution. Knittel is devoid of any discussion relating to the first end of the tube 1 being configured for placement in a well of a plate containing the reservoir solution. Accordingly, the Examiner's proposed Heilig et al./ Knittel combination does not

arrive at the invention defined by claim 1. As such, the Examiner has not established an appropriate prima facie case of obviousness, and the applicant respectfully requests that the rejection of claim 1 be withdrawn.

If after considering the above discussion the Examiner maintains the subject rejection of claim 1, the Applicant respectfully requests the Examiner to point out with particularity (i.e. by column and line number) where in the proposed combination of Heilig et al./ Knittel does it teach or suggest each and every element of claim 1. For example, where in Heilig et al./ Knittel does it teach or suggest a first end, a second end, a discrete diffusion pathway extending from the first end to the second end, and the first end of the device being configured for placement in a well of a plate containing a reservoir solution.

Discussion of Claims 2, 4, 5, 29, and 30

Each of claims 2, 4, 5, 29, and 30 include claim 1 as a base claim. Therefore, each of these claims include the same limitations of claim 1. As such, the discussion of claim 1 is pertinent to each of claims 2, 4, 5, 29, and 30. In addition, each of claims 2, 4, 5, 29, and 30 recite further limitations which render them even further patentable in light of the proposed Heilig et al./ Knittel combination. Accordingly, the Applicant respectfully requests that the rejection of these claims also be withdrawn.

Discussion of Claim 14

As indicated above, claim 14 reads as follows:

14. A device for kinetically controlling the rate of vapor diffusion during crystal growth in a crystal growth solution comprising:

- (a) a reservoir unit comprising a plurality of reservoir chambers.
- (b) a channel unit comprising a plurality of discrete channels configured to control the rate of vapor diffusion between the reservoir chamber and the crystal growth solution, each of the channels having a geometry different from each other channel to provide a different diffusion rate; and
- (c) a selection unit comprising an opening wherein the opening is large enough not to control the rate of vapor diffusion between the reservoir chamber and the crystal growth solution;

wherein the channel unit and the selection unit rotate individually to align the reservoir chamber, one of the discrete channels, and the opening.

As indicated by the Examiner, one limitation of claim 14 is that the device includes a plurality of discrete channels with each channel having a geometry different from each other channel to provide a different diffusion rate. The Examiner acknowledges that the proposed Heilig et al./ Knittel combination is devoid of any discussion with respect to each channel having a geometry different from each other channel to provide a different diffusion rate. However, the Examiner still submits that the invention of claim 14 is obvious in light of Heilig et al. and Knittel since Knittel teaches that alternative constricting channel configurations can be utilized. In response, the Applicant reminds the Examiner that, as previously indicated, both Heilig et al. and Knittel are devoid of any discussion with respect to each channel having a geometry different from each other channel to provide a different diffusion rate. The Applicant further reminds the Examiner that the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. Heilig et al. and Knittel fail to suggest any motivation for, or desirability of, the changes espoused by the Examiner.

Therefore, in light of the above discussion, Applicant submits that the Examiner has **not** established a proper prima facie case of obviousness, and the Applicant respectfully requests that the subject rejection be withdrawn. Once again, if after considering the above discussion the Examiner maintains the subject rejection, the Applicant respectfully requests that the Examiner point out with particularity (i.e. by column and line number) where Heilig et al. and/or Knittel teach or suggest a plurality of discrete channels with each channel having a geometry different from each other channel to provide a different diffusion rate.

Discussion of Claims 15-18

Each of claims 15-18 include claim 14 as a base claim. Therefore, each of these claims include the same limitations of claim 14. As such, the discussion of claim 14 is pertinent to each of claims 15-18. In addition, each of claims 15-18 recite further limitations which render them even further patentable in light of the proposed Heilig et al./ Knittel combination. Accordingly, the Applicant respectfully requests that the rejection of these claims also be withdrawn.

Discussion of Claim 19

Claim 19 reads as follows:

19. An assembly for aiding crystal growth, said assembly comprising:
a container for holding a reservoir solution;
a device configured for engaging the container, the device having a first end configured for placement within the container, a second end, and a discrete diffusion pathway extending from the first end to the second end; and
a seal configured to engage the second end, wherein when the seal engages the second end the seal and the second end define a space for the crystal growth solution.

As indicated above, like claim 1, claim 19 recites that the assembly includes a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. As previously discussed, Heilig does not teach or suggest a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. In addition, Knittel does not teach or suggest a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. Accordingly, the proposed combination of Heilig and Knittel does not arrive at the invention of claim 19. Therefore, Applicant submits that the Examiner has **not** established a proper prima facie case of obviousness, and the Applicant respectfully requests that the subject rejection be withdrawn.

Discussion of Claims 20-23, 27, 28 and 31

Each of claims 20-23, 27, 28 and 31 include claim 19 as a base claim. Therefore, each of these claims include the same limitations of claim 19. As such, the discussion of claim 19 is pertinent to each of claims 20-23, 27, 28 and 31. In addition, each of claims 20-23, 27, 28 and 31 recite further limitations which render them even further patentable in light of the proposed Heilig et al./ Knittel combination. Accordingly, the Applicant respectfully requests that the rejection of these claims also be withdrawn.

Discussion of Claim 36

36. A device for controlling the rate of vapor diffusion during crystal growth, the device comprising

a first end having a depression to provide a space for a crystal growth solution,
a second end for placement into a well of a plate, the well containing a
reservoir solution,
a generally cylindrical body extending from the first end to the second end,
and
a diffusion pathway extending through the body from the first end to the
second end, the diffusion pathway having a geometry to control the rate of vapor diffusion
between the crystal growth solution and the reservoir solution.

Claim 36 also recites that the device includes a first end, a second end, and a
diffusion pathway extending from the first end to the second end. As previously discussed,
Heilig does not teach or suggest a device having a first end, a second end, and a diffusion
pathway extending from the first end to the second end. In addition, Knittel does not teach or
suggest a device having a first end, a second end, and a discrete diffusion pathway extending
from the first end to the second end. Accordingly, the proposed combination of Heilig and
Knittel does not arrive at the invention of claim 36. Therefore, Applicant submits that the
Examiner has **not** established a proper prima facie case of obviousness, and the Applicant
respectfully requests that the subject rejection be withdrawn.

Discussion of Claims 37-39

Each of claims 37-39 include claim 36 as a base claim. Therefore, each of
these claims include the same limitations of claim 36. As such, the discussion of claim 36 is
pertinent to each of claims 37-39. In addition, each of claims 37-39 recite further limitations
which render them even further patentable in light of the proposed Heilig et al./ Knittel
combination. Accordingly, the Applicant respectfully requests that the rejection of these
claims also be withdrawn.

Rejection of Claims 24-26, 32, 34, 35, 40-41 Under 35 U.S.C. § 103(a)

Claims 24-26, 32, 34, 35, 40-41 were rejected under 35 U.S.C. § 103(a) as
being unpatentable over Heilig et al. (U.S. Patent No. 5,266,284) in view of Knittel (U.S.
Patent No. 3,972,689) as applied to claims 1-2, 4-5, 14-23 and 27-31 and further in view of
Kim et al. (U.S. Patent No. 6,039,804). Each of claims 24-26, 32, 34, 35, 40-41 include

either claim 1, 19, or 36 as a base claim. Accordingly, each of claims 24-26, 32, 34, 35, 40-41 include the same limitations as the base independent claim. The deficiencies of the proposed Heilig et al./ Knittel combination are discussed above. Kim et al. does not address these deficiencies. Therefore, a prima facie case of obviousness has not been established with respect to the subject claims and the Applicant respectfully requests that the rejection be withdrawn.

Rejection of Claims 1, 2, 4, 5, 29-41 Under 35 U.S.C. § 103(a)

Claims 1, 2, 4, 5, 29-41 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kim et al. (U.S. Patent No. 6,039,804) in view of Knittel (U.S. Patent No. 3,972,689).

Discussion of Claim 1

As previously discussed, a device defined by claim 1 will include a first end, a second end, a discrete diffusion pathway extending from the first end to the second end, and the first end of the device being configured for placement in a well of a plate containing a reservoir solution. As discussed above Knittel does not teach or suggest a device having a first end, a second end, and a discrete diffusion pathway extending from the first end to the second end. As shown in FIGS. 1 and 2 of Knittel, the constricting channel 4 does not extend from the first end to the second end of the device as recited by claim 1. As previously discussed column 2, lines 1-6 of Knittel reads as follows:

Referring to FIG. 1 a tube 1 approximately 15 cm long is tapered at one end 2. A crystal 3 grows at this tapered end. A constricting channel 4 about 5 cm from the bottom of the tube and of ½ mm diameter extends fully into the liquified sample 5.

Accordingly, the Examiner will appreciate that Knittel's constricting channel only extends about a third of the distance from the first end of the device to the second end. This is in contrast to the language in claim 1 which recites "a discrete diffusion pathway extending from the first end to the second end." Moreover, the Examiner is reminded that claim 1 requires that the first end of the device be configured for placement in a well of a plate containing the reservoir solution. Knittel is devoid of any discussion relating to the first end of the tube 1 being configured for placement in a well of a plate containing the reservoir

solution. Therefore, Knittel does not cure any of the deficiencies of Kim et al. Accordingly, the Examiner's proposed Kim et al./ Knittel combination does not arrive at the invention defined by claim 1. As such, the Examiner has not established an appropriate prima facie case of obviousness, and the applicant respectfully requests that the rejection of claim 1 be withdrawn.

If after considering the above discussion the Examiner maintains the subject rejection of claim 1, the Applicant respectfully requests the Examiner to point out with particularity (i.e. by column and line number) where in the proposed combination of Kim et al./ Knittel does it teach or suggest each and every element of claim 1. For example, where in Kim et al./ Knittel does it teach or suggest a first end, a second end, a discrete diffusion pathway extending from the first end to the second end, and the first end of the device being configured for placement in a well of a plate containing a reservoir solution.

Discussion of Claim 36

As indicated above claim 36 recites that the device includes a first end, a second end, and a diffusion pathway extending from the first end to the second end. Neither Kim et al. or Knittel teach or suggest a device having a first end, a second end, and a diffusion pathway extending from the first end to the second end. Accordingly, the proposed combination of Kim et al. and Knittel does not arrive at the invention of claim 36. Therefore, Applicant submits that the Examiner has **not** established a proper prima facie case of obviousness, and the Applicant respectfully requests that the subject rejection be withdrawn.

If after considering the above discussion the Examiner maintains the subject rejection of claim 36, the Applicant respectfully requests the Examiner to point out with particularity (i.e. by column and line number) where in the proposed combination of Kim et al./ Knittel does it teach or suggest each and every element of claim 36.

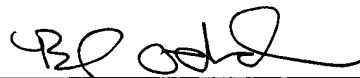
CONCLUSION

In view of the foregoing remarks, it is submitted that this application is in condition for allowance. Action to that end is hereby solicited.

In the event that there are any questions related to this response in particular, or to the application in general, the undersigned would appreciate the opportunity to address those questions directly in a telephone interview to expedite the prosecution of this application for all concerned.

In conclusion, should any additional fees be required to render this response timely, or in the event of overpayment, the Commissioner is hereby authorized to charge or credit Applicant's undersigned counsel's Deposit Account 10-0435, with reference to our file 30705-68918. A duplicate copy of this authorization is enclosed for that purpose.

Respectfully submitted



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